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PLANETARY PHENOMENA FOR JULY AND  
AUGUST, 1905.

BY MALCOLM MCNEILL.

PHASES OF THE MOON, PACIFIC TIME.

New Moon,	July 2,	9 <sup>h</sup> 50 <sup>m</sup> A.M.	First Quarter, Aug. 7,	2 <sup>h</sup> 16 <sup>m</sup> P.M.
First Quarter,	" 9,	9 46 A.M.	Full Moon, " 14,	7 31 P.M.
Full Moon,	" 16,	7 32 A.M.	Last Quarter, " 22,	10 10 P.M.
Last Quarter,	" 24,	5 9 A.M.	New Moon, " 30,	5 13 A.M.
New Moon,	" 31,	8 3 P.M.		

The Earth is in aphelion,—that is, the Earth is at its greatest distance from the Sun,—at about 7 A.M. July 3d, Pacific time.

The third eclipse of the year occurs on the evening of August 14th, and is a partial eclipse of the Moon. It will be visible throughout the United States. The eclipse begins at 6<sup>h</sup> 39<sup>m</sup> P.M., Pacific time, shortly before sunset for far western points; its middle is at 7<sup>h</sup> 41<sup>m</sup>, and it ends at 8<sup>h</sup> 43<sup>m</sup>. The maximum obscuration is about one quarter of the Moon's diameter.

The fourth eclipse occurs on August 30th, and is a total eclipse of the Sun. The eclipse will be seen as partial in the early morning in that part of the United States east of the Rocky Mountains. The path of totality extends from the part of Canada north of Lake Superior eastward through Labrador, across the Atlantic, through Spain, the Mediterranean, and Egypt, ending in southern Arabia. The duration of totality is rather greater than usual, nearly four minutes for some localities, and there will be no difficulty in finding places in the path of totality suitable for observing-stations.

*Mercury* passed superior conjunction with the Sun June 24th and became an evening star. It will remain an evening star until August 29th, when it passes inferior conjunction with the Sun and becomes a morning star. It reaches its greatest eastern elongation, 27° 18', August 2d, only two days before aphelion passage. This greatest elongation is therefore nearly the largest possible, but, as in the previous western elongation, the planet is south of the Sun and does not remain

above the horizon as long after sunset as it would otherwise. However, for nearly a month, from about July 10th to August 10th, the planet remains above the horizon an hour or more after sunset, an hour and twenty minutes for a few days before the time of greatest elongation. It may therefore be seen without great difficulty in the evening twilight on a clear day.

*Venus* is a morning star, reaching its greatest west elongation,  $45^{\circ} 44'$ , on August 6th. It rises from two and one half to three and one half hours before sunrise, the largest interval coming about the middle of August. It moves about  $69^{\circ}$  eastward among the stars from a point in *Taurus* a little south of the *Pleiades* through *Gemini* to the western boundary of *Cancer*. On July 17th it passes about  $2^{\circ}$  north of the first-magnitude red star *Aldebaran*,  $\alpha$  *Tauri*. On the morning of July 4th it is in conjunction with *Jupiter*, passing  $2\frac{1}{2}^{\circ}$  south of the latter, and on August 14th it is in conjunction with *Neptune*, passing less than  $1^{\circ}$  south.

*Mars* is still in fine position for evening observation. It remains above the horizon until nearly 1 A.M. on July 1st, but sets a few minutes earlier each night, until at the end of August it sets shortly after 10 P.M. It moves during the two months  $26^{\circ}$  eastward and  $6^{\circ}$  southward from *Libra* into *Scorpio*. On August 26th it is about  $3^{\circ}$  south of  $\beta$  *Scorpii*, and at the end of the month it is about  $5^{\circ}$  north and west of *Antares*,  $\alpha$  *Scorpii*. It will still be a prominent object, although even on July 1st its light will be only a little more than half as great as it was at opposition, and by the end of August it will be less than half as bright as it was on July 1st. On August 24th its distance from us will be about the same as the Earth's distance from the Sun.

*Jupiter* rises at about 2 A.M. on July 1st and at about 10:30 P.M. on August 31st. It is in *Taurus*, and moves about  $9^{\circ}$  east and  $2^{\circ}$  north from a point south of the *Pleiades* to a point about  $5^{\circ}$  north and west of the first-magnitude star *Aldebaran*,  $\alpha$  *Tauri*.

*Saturn* is gradually moving to a place suitable for evening observation. It rises before 10:30 P.M. on July 1st, and before sunset on August 31st. It comes to opposition with the Sun about midnight on August 22d. It is retrograding, and moves about  $4^{\circ}$  west and south in *Aquarius*. The plane of the planet's

rings is much nearer the Earth than it was a year ago; and the minor axis is therefore much smaller than it was at that time. It is now only about one sixth of the major axis.

*Uranus* passed opposition with the Sun on June 24th and varies its time of setting from 4 A.M. on July 1st to about midnight on August 31st. It is in *Sagittarius*, a little north and west of the handle of the "milk-dipper" group.

*Neptune* is a morning object in *Gemini*.

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## OTTO WILHELM STRUVE.

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BY M. NYRÉN.

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[The following note on the life of the late OTTO STRUVE has been translated from the original in the *Astronomische Nachrichten* (4013) because it seemed most appropriate to give our readers the words of one who was personally associated with him in the work of the Pulkowa Observatory.

In common with astronomers the world over, we hold the name and work of OTTO STRUVE in high respect and honor.—R. G. A.]

OTTO WILHELM STRUVE, former Director of the Pulkowa Observatory, passed out of this life peacefully at Karlsruhe on the 14th of this month [April, 1905]. Thus closed a life rich in years, in work, in fulfillment. This life belongs to the history of Astronomy, and is inseparably connected with the history of the Pulkowa Observatory.

Born on the 7th of May [25th April], 1819, in Dorpat, where his father, WILHELM STRUVE, held the position of Professor and Director of the University Observatory, OTTO STRUVE completed his course in the gymnasium in his fifteenth year, but, because of his youth, was obliged to wait a year before being matriculated in the university of his native province.

When he took his degree in 1839 he had already been employed in the observatory for two years as his father's assistant. In the mean time the Central Astronomical Observatory for Russia had been founded at Pulkowa under the direction of W. STRUVE, and when it was opened for active work, OTTO STRUVE and three other young scientists, G. FUSS,